

Appl. No. : 10/780,502
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IN THE CLAIMS:

1. (currently amended) A microbubble for use in diagnostic imaging in a liquid medium wherein the microbubble transports the in-vivo transport of physiological gases in vivo wherein the microbubble comprises a membrane and at least one fluorocarbon gas and at least one modifier gas wherein the microbubble grows and shrinks to maintain osmotic equilibrium with the physiological gas saturation of the surrounding ~~external~~ liquid medium.
2. (currently amended) The microbubble of claim 1 wherein the modifier gas saturation level changes in the bubble as the microbubble circulates in the bloodstream of the patient.
3. (currently amended) The microbubble of claim 1 wherein the surrounding ~~external~~ liquid medium is blood.
4. (cancelled) ~~The microbubble of claim 1 wherein the microbubble comprises at least one fluorocarbon gas and at least one modifier gas while in vivo.~~
5. (previously presented) The microbubble of claim 1 wherein the ~~physiological gases are~~ modifier gas is at least one gas selected from the group consisting of oxygen, nitrogen and carbon dioxide.
6. (currently amended) The microbubble of claim 1 wherein the microbubble grows when the modifier gas of the microbubble exchanges with gases present in the surrounding ~~external~~ liquid medium.
7. (currently amended) The microbubble of claim 6 wherein the gas present in the surrounding ~~external~~ liquid medium is oxygen.

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8. (currently amended) The microbubble of claim 6 wherein the gas present in the surrounding ~~external~~ liquid medium is air.
9. (currently amended) The microbubble of claim 1 wherein the at least one fluorocarbon gas is selected from the group consisting of perfluoropropanes, perfluorobutanes, perfluorocyclobutanes, perfluoropentanes, perfluorocyclopentanes, perfluoromethylcyclopentanes, perfluorohexanes, perfluorocyclohexanes, perfluoromethylcyclopentanes, perfluorodimethylcyclobutanes, perfluoroheptanes, perfluorocycloheptanes, perfluoromethylcyclohexanes, perfluorodimethylcyclopentanes, perfluorotrimethylcyclobutanes, and perfluorotriethylamines, ~~and sulfur hexafluoride.~~
10. (currently amended) A microbubble for use in diagnostic imaging in a liquid medium, wherein the microbubble transports in vivo delivery of physiological gases to an ~~organism or tissues of an organism~~ and wherein the microbubble comprises at least one fluorocarbon gas and at least one modifier gas comprising oxygen wherein the microbubble grows or shrinks in ~~diameter to maintain osmotic equilibrium with the~~ surrounding external the surrounding liquid medium.
11. (previously presented) The microbubble composition of claim 10 wherein the fluorocarbon gas is perfluorohexane.
12. (currently amended) The microbubble of claim 10 wherein the microbubble grows in diameter to maintain osmotic equilibrium of oxygen within the microbubble with the oxygen in the surrounding liquid medium.
13. (currently amended) The microbubble of claim 10 wherein the surrounding liquid medium is blood.

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14. (currently amended) The microbubble of claim 10 wherein the first fluorocarbon gas is selected from the group consisting of perfluoropropanes, perfluorobutanes, perfluorocyclobutanes, perfluoropentanes, perfluorocyclopentanes, perfluoromethylcyclopentanes, perfluorohexanes, perfluorocyclohexanes, perfluoromethylcyclopentanes, perfluorodimethylcyclobutanes, perfluoroheptanes, perfluorocycloheptanes, perfluoromethylcyclohexanes, perfluorodimethylcyclopentanes, perfluorotrimethylcyclobutanes, and perfluorotriethylamines, ~~and sulfur hexafluoride.~~
15. (previously presented) The microbubble of claim 10 wherein the microbubble further comprises a membrane.
16. (previously presented) The microbubble of claim 11 wherein the microbubble further comprises a membrane.
17. (currently amended) A microbubble composition for use in diagnostic imaging in a liquid medium wherein the microbubble comprises a membrane and transports for the in vivo ~~transport of~~ physiological gases in vivo wherein the microbubble comprises at least one fluorocarbon gas and at least one modifier gas wherein the microbubble first shrinks as a result of loss of the modifier gas to the surrounding liquid medium and then grows as the microbubble gains osmotic equilibrium with the physiological gas saturation of the surrounding liquid medium.
18. (previously presented) The microbubble composition of claim 17 wherein the modifier gas is selected from the group consisting of oxygen, nitrogen and carbon dioxide.
19. (previously presented) The microbubble composition of claim 17 wherein the transported physiological gas is oxygen.

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20. (currently amended) The microbubble composition of claim 17 wherein the fluorocarbon gas is selected from the group consisting of perfluoropropanes, perfluorobutanes, perfluorocyclobutanes, perfluoropentanes, perfluorocyclopentanes, perfluoromethylcyclopentanes, perfluorohexanes, perfluorocyclohexanes, perfluoromethylcyclopentanes, perfluorodimethylcyclobutanes, perfluoroheptanes, perfluorocycloheptanes, perfluoromethylcyclohexanes, perfluorodimethylcyclopentanes, perfluorotrimethylcyclobutanes, and perfluorotriethylamines, ~~and sulfur hexafluoride.~~